Aiming the Magic Bullet:

Physical Activity, Cardiovascular Disease, & Diabetes

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UTAH DEPARTMENT OF HEALTH
Physical Activity, Nutrition & Obesity Program

Objectives:

1. Participants will be able to identify what the physical activity recommendations are for each population group.
2. Participants will have been shown how physical activity affects chronic disease acquisition and management.
3. Participants will be exposed to resources that can assist in proper physical activity recommendations for their clients/patients.

"What if there was **one prescription** that could **prevent and treat** dozens of diseases, such as diabetes, hypertension and obesity?

Would you prescribe it to your patients?

Certainly."

-Robert E. Sallis, M.D., FACSM,
Exercise is Medicine™ Task Force Chairman

History of PA Recommendations

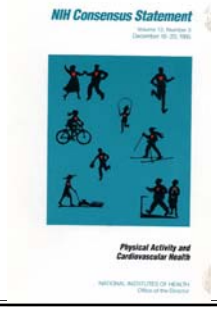
Sport Based

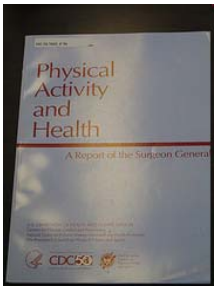
- Mid-1950's
  - President's Council on Physical Fitness, Professional organization driven
- 1960's
  - Pres. Kennedy's "Soft American", Cooper Institute
- 1977
  - Dietary Goals for the United States,
- 1995
  - CDC and ACSM released guidelines for PA
- 1996
  - Physical Activity and Health: A Report of the Surgeon General
- 2000/2005
  - Dietary Guidelines for Americans-Included PA
- 2008
  - Physical Activity Guidelines for Americans

Special Communication

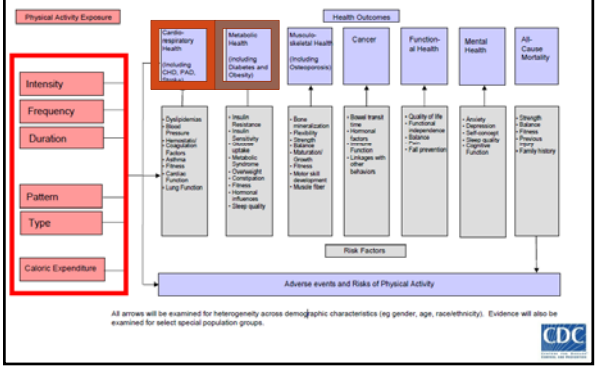
Physical Activity and Public Health

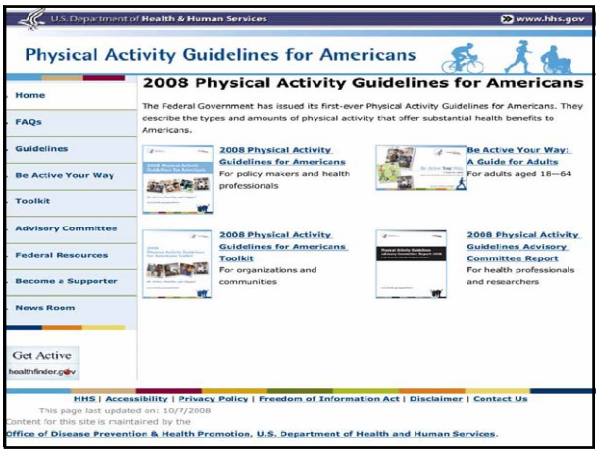
A Recommendation From the Centers for Disease Control and Prevention and the American College of Sports Medicine





Physical Activity Guidelines For Americans:
Conceptual Framework for Scientific Literature Review





Guidelines for Children/Adolescents

- 1 hour or more of daily physical activity that is at least moderate intensity,
- Vigorous physical activity at least 3 days/week
- As part of 1 or more hours of daily physical activity, include muscle-strengthening activities at least 3 days a week.
- As part of 1 or more hours of daily physical activity, include bone-strengthening activities at least 3 days a week.
- It is important to encourage young people to participate in physical activities that are age appropriate, enjoyable, and offer variety.

Guidelines for Adults

- Minimum levels/week
  - 150 minutes (2 ½ hours) moderate intensity; or
  - 75 minutes (1 hour 15 minutes) vigorous intensity; or
  - A combination of the two
- Muscle strengthening activities involving all major muscle groups should be performed on 2 or more days of the week

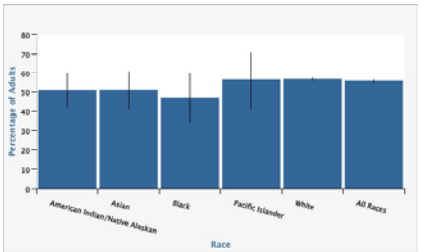
Guidelines for Adults

- Additional health benefits occur at:
  - 300 minutes (5 hours) moderate intensity; or
  - 150 minutes (2 ½ hours) vigorous intensity; or
  - A combination
    - 2:1 rule

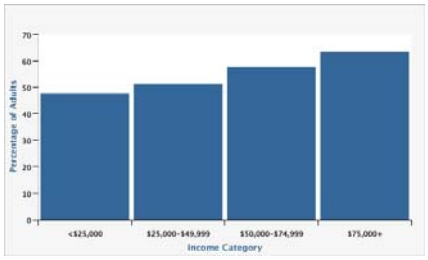
Guidelines for Older Adults

- Follow Adult Guidelines
  - If not possible, be as active as abilities or conditions allow
- Emphasize exercises that maintain or improve balance
- Those without chronic conditions or symptoms do not need to consult a health care provider prior to activity

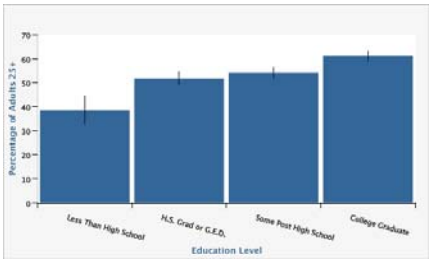
Percentage of Adults Who Reported Getting the Recommended Amount of Physical Activity by Race, Utah Adults Aged 18+, 2005, 2007, and 2009



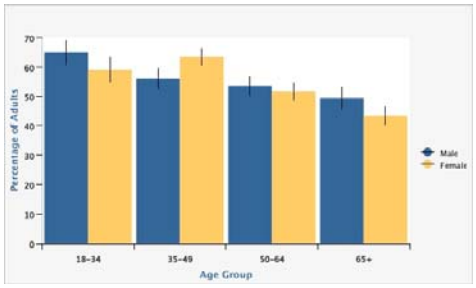
Percentage of Adults Who Reported Getting the Recommended Amount of Physical Activity by Income, Utah Adults Aged 18+, 2005, 2007, and 2009



Percentage of Adults Who Reported Getting the Recommended Amount of Physical Activity by Education Level, Utah, 2009



Percentage of Adults Who Reported Getting the Recommended Amount of Physical Activity by Gender and Age Group, Utah Adults Aged 18+, 2009



BASIC SCIENCES

Sitting Time and Mortality from All Causes, Cardiovascular Disease, and Cancer

PETER T. KATZMARZYK[1], TIMOTHY S. CHURCH[1], CORA L. CRAIG[2], and CLAUDE BOUCHARD[1]

[1]*Pennington Biomedical Research Center, Baton Rouge, LA, and* [2]*Canadian Fitness and Lifestyle Research Institute, Ottawa, Ontario, CANADA*

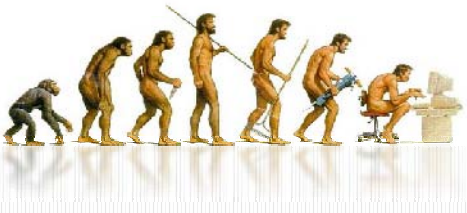
ABSTRACT

KATZMARZYK, P. T., T. S. CHURCH, C. L. CRAIG, and C. BOUCHARD. Sitting Time and Mortality from All Causes, Cardiovascular Disease, and Cancer. *Med Sci Sports Exerc*., Vol. 41, No. 5, pp. 998–1005, 2009. **Purpose:** Although moderate-to-vigorous physical activity is related to premature mortality, the relationship between sedentary behaviors and mortality has not been fully explored and may represent a different paradigm than that associated with lack of exercise. We prospectively examined sitting time and mortality in a representative sample of 17,013 Canadians 18–90 yr of age. **Methods:** Evaluation of daily sitting time (almost none of the time, one fourth of the time, half of the time, three fourths of the time, almost all of the time), leisure time physical activity, smoking status, and alcohol consumption was conducted at baseline. Participants were followed prospectively for an average of 12.0 yr for the ascertainment of mortality status. **Results:** There were 1832 deaths (759 of cardiovascular disease (CVD) and 547 of cancer) during 204,732 person-yr of follow-up. After adjustment for potential confounders, there was a progressively higher risk of mortality across higher levels of sitting time from all causes (hazard ratios (HR): 1.00, 1.00, 1.11, 1.36, 1.54; *P* for trend <0.0001) and CVD (HR: 1.00, 1.01, 1.22, 1.47, 1.54; *P* for trend <0.0001) but not cancer. Similar results were obtained when stratified by sex, age, smoking status, and body mass index. Age-adjusted all-cause mortality rates per 10,000 person-yr of follow-up were 87, 86, 105, 130, and 161 (*P* for trend <0.0001) in physically inactive participants and 75, 69, 76, 98, 105 (*P* for trend = 0.008) in active participants across sitting time categories. **Conclusions:** These data demonstrate a dose–response association between sitting time and mortality from all causes and CVD, independent of leisure time physical activity. In addition to the promotion of moderate-to-vigorous physical activity and a healthy weight, physicians should discourage sitting for extended periods. **Key Words:** PHYSICAL ACTIVITY, SEDENTARY BEHAVIOR, COHORT, DEATH, SURVIVAL

SITTING TOO LONG WILL KILL YOU!

Risk of early death after sitting for 6 hours increases 20% for men, and 40% for women

Physical Activity and Chronic Disease

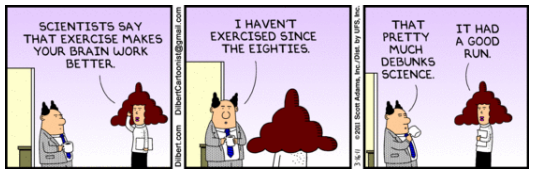


Physical Activity Affects the Entire Body

Regular physical activity at the correct intensity:

- Reduces the risk of heart disease by 40%.
- Lowers the risk of stroke by 27%.
- Reduces the incidence of diabetes by almost 50%.
- Reduces the incidence of high blood pressure by almost 50%.
- Can reduce mortality and the risk of recurrent breast cancer by almost 50%.
- Can lower the risk of colon cancer by over 60%.
- Can reduce the risk of developing of Alzheimer's disease by one-third.
- Can decrease depression as effectively as Prozac or behavioral therapy.

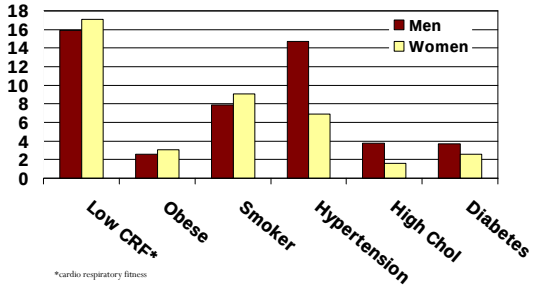
Physical Activity and The Brain…



Effect of Fitness (CRF) on Mortality

Attributable Fractions (%) for All-Cause Deaths

40,842 Men & 12,943 Women, ACLS

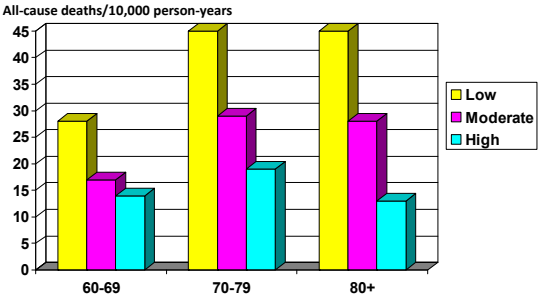


*cardio respiratory fitness

Blair SN. Physical inactivity: the biggest public health problem of the 21st century. *Br J Sports Med* 2009; 43:1-2.

CRF and All-Cause Mortality,

4060 Women and Men ≥60 Years of Age, 989 Deaths



Rates are age adjusted

Sui X et al. *J Am Geriatrics Soc* 2007; 55:1940-7

Lifestyle-related Risk Factors and Risk of Future Nursing Home Admissions; 6462 Adults

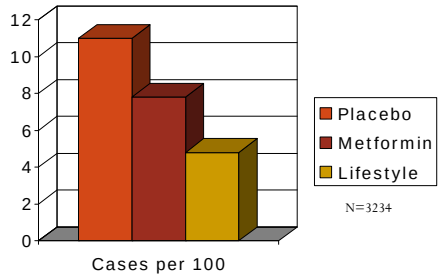
Risk Factor	45-64 years Hazard Ratio (95% CI)
Smoking	**1.56 (1.23-1.99)**
Physical Inactivity	1.40 (1.05-1.87)
BMI ≥30.0	**1.35 (0.96-1.89)**
High BP	**1.35 (1.06-1.73)**
High Cholesterol	**1.14 (0.89-1.44)**
Diabetes	**3.25 (2.04-5.19)**

Valiyeva E et al. *Arch Int Med* 2006; 166:985

Physical Activity Trivia

- True or False. Breaking up your physical activity into 10 minute segments provides the same benefits as doing it all at the same time.
  - True
  - False

Effectiveness of Interventions for Diabetes



Knowler et al, NEJM, 2002

Activity in Diabetes

- Autonomic neuropathy: may decrease cardiac responsiveness to exercise, ↑ risk of postural hypotension, impaired thermoregulation, etc
- Persons with diabetes should undergo cardiac evaluation prior to initiation of increased activity program

Activity in Presence of Specific Long Term Complications of Diabetes

- Retinopathy: vigorous aerobic or resistance exercise may trigger hemorrhages or retinal detachment
- Peripheral neuropathy: lack of pain sensation increases risk of injury and skin breakdown; non weight-bearing exercise may be best

American Diabetes Association Standards of medical care in diabetes. *Diabetes Care* 30:S4-S36, 2007

Your Prescription for Health
ExeRcise is Medicine™
www.ExerciseIsMedicine.org

Support for the Exercise is Medicine™ National Initiative is Provided by:

Founding Partners:

Advisory Partners:

"If we had a pill that gave all those benefits and was readily available, we would find a way to make sure every patient took it."
Robert E. Sallis, M.D.

"Your Prescription for Health" series

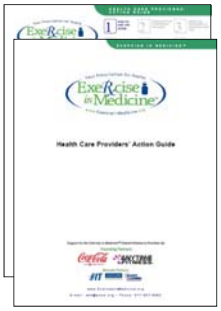
- Provides information and advice on exercising safely with health conditions.
- Physicians and fitness professionals can recommend these to their patients/clients during visits.
- Includes titles such as:

Exercising Following Coronary Artery Bypass Surgery
Exercising Following a Heart Attack
Exercising Following a Stroke
Exercising while Losing Weight
Exercising with Alzheimer's
Exercising with Anxiety and Depression
Exercising with Atrial Fibrillation
Exercising with Cancer
Exercising with Low Back Pain
Exercising with Peripheral Arterial Disease
Exercising with Visual Impairment

- All titles available for download at:
http://www.exerciseismedicine.org/YourPrescription.htm

Health Care Providers' Action Guide

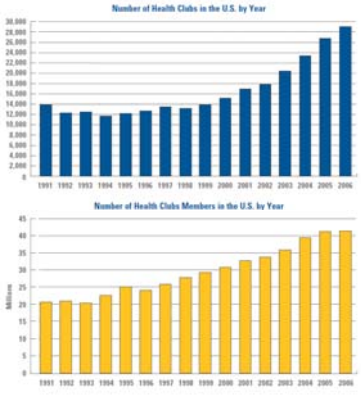
The Health Care Providers' Action Guide provides physicians and other health care providers with a simple, fast, and effective tool for using physical activity, in the right "dosage", as a highly effective prescription for the prevention, treatment, and management of more than 40 of the most common chronic health conditions encountered in primary practice.



Guide Highlights

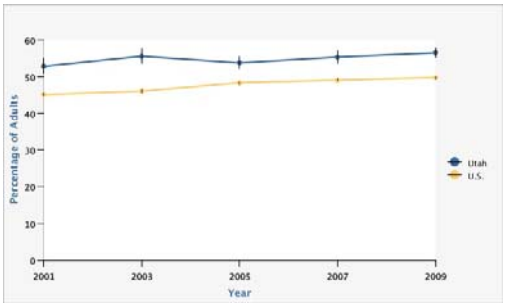
- Exercise Prescription and Referral Process document
- Exercise Readiness and Prescription form
- Starting an Exercise Program patient handout
- Your Prescription for Health series
- Physician office flier

How Do We Increase Physical Activity?

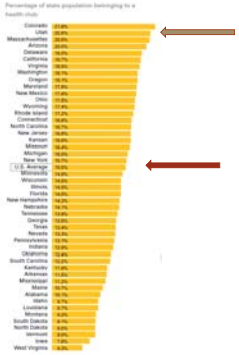


Sources: Active Marketing Group; International Health and Racquet Sportsclub Association

Percentage of Adults Who Reported Getting the Recommended Amount of Physical Activity, Utah and U.S. Adults Age 18+, 2001, 2003, 2005, 2007, and 2009



Health Club Memberships



- This is good money
  - When people pay you to be open and make them feel better
  - And, they don't have to do anything about it,
  - Then, in their minds, problem solved!

The Role of Personal Responsibility

- Personal Responsibility as the driver for behavior change can only take us so far
- Put ANY motivated individual in an poor environment and eventually behaviors will revert back

Why Aren't We the Fittest/Healthiest People in the World?

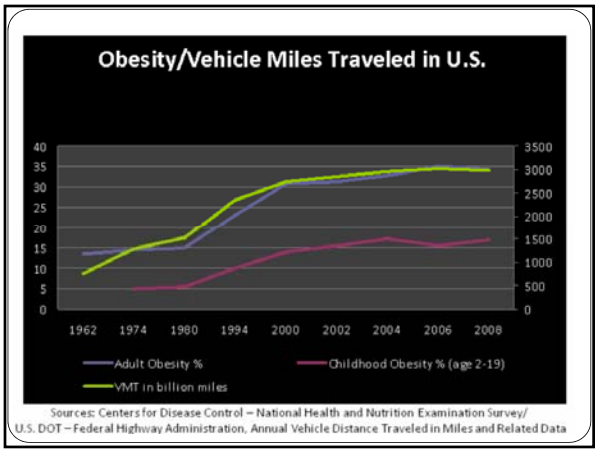
- We have out engineered our biology!
- Cognitive dissonance occurs when the factors we have identified as high priority are ignored or counteracted in practice
- And we are GOOD at it

We Are Facing Many Obstacles

- Public health and health care provider goals can and often do conflict with private industry that has considerably higher budgets
- Our challenge/goal is to level the playing field so our residents/patients are not fighting an uphill battle

Our Approach

Public Health 101:
Impact= Reach x Effectiveness x Exposure



Physicians, their Patients, & Exercise

- 47% of primary care physicians include an exercise history as part of their initial examination
- Only 13% of patients report physicians giving advice about exercise
- Physically active physicians are more likely to discuss exercise with their patients
- Nearly two-thirds of patients (65%) would be more interested in exercising to stay healthy if advised by their doctor and given additional resources.

65%

Eakin, Am J Prev Med, 2005
Abramson, Clin J Sport Med, 2000
Walsh, Am J Prev Med, 1999
ACSM Survey

Train Up A Child…

- 25% of obese preschoolers become obese
- 80% of obese 14 year-olds remain obese
- 70% of obese children who lose weight will maintain that loss as adults
- BMI at 18 years stronger predictor of DM2 than at ANY other age

Allen, J Pediatr, 2007
Flegal, Physiol Behav, 2005

Changing The Culture

Those who think they have not time for bodily exercise will sooner or later have to find time for illness.

Edward Stanley, Earl of Derby (1826-93), British statesman.

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